

## CLAIMS

1. An optical collimator, comprising:

a cylindrical eccentric sleeve;

a partially spherical lens having a columnar portion fixed into the eccentric sleeve and translucent spherical surfaces with approximately the same center of curvature at both ends of the columnar portion; and

a capillary tube fixed into the eccentric sleeve, holding an optical fiber at a center, and having an angled end face directed toward the partially spherical lens,

wherein the eccentric sleeve is made of glass or crystallized glass.

2. An optical collimator according to claim 1, wherein an optical axis of collimated beam outgoing from the translucent spherical surface of the partially spherical lens is in a round with radius range of 0.02 mm or less, the center of the round being a center axis of an outer surface of the sleeve, and in an angle range of  $0.2^{\circ}$  or less with respect to the center axis of the outer surface of the sleeve.

3. An optical collimator according to claim 1 or 2, wherein, when one pair of the optical collimators are arranged to oppose

each other at positions, at which a working distance thereof is secured, and under a state, in which the center axes of the outer surfaces of the eccentric sleeves coincide with each other, and when optical signal is introduced from the optical fiber on one side, an optical signal response of -30 dB or more is obtained with respect to an input from the optical fiber on the other side.

4. An optical collimator according to any one of claims 1 to 3, wherein the eccentric sleeve is produced using a drawing process.

5. An optical collimator according to any one of claims 1 to 4, wherein the capillary tube is made of glass or crystallized glass.

6. An optical collimator according to any one of claims 1 to 5, wherein differences in coefficient of thermal expansion among the partially spherical lens, the capillary tube, and the eccentric sleeve are  $50 \times 10^{-7}/K$  or less.

7. An optical collimator according to claim 5 or 6, wherein the partially spherical lens is made of glass or crystallized glass as an electrically insulating material and substantially no eddy current is generated due to electromagnetic induction in a high magnetic field of 1 Tesla or more.

8. An optical collimator according to any one of claims 1 to 7, wherein a maximum diameter is less than 2 mm.